

**SEQUENCE LISTING**

<110> Jayashree Aiyar  
Claudia Ann Iannotti  
Edward Philip Christian  
Naomi Jean Logsdon

<120> HUMAN BRAIN-DERIVED TISSUE-SPECIFIC POTASSIUM CHANNEL

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<151> 1997-12-13

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<212> DNA  
<213> Homo sapiens

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<212> DNA  
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ctctacaacg	tgctggagcg	gccgcgc	tggcg	tctaccacgc	ctacgtttc	300
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cagtcc	gg	actt	tt	gt	gtat	1080
cagtacta	ac	cc	tc	cc	ctcc	1140
gcctcc	ttat	cc	at	ca	ac	1200
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gat	ac	ca	gg	gg	cc	1560
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ctgt	cc	ac	gt	gg	cc	1800
atc	ac	gg	gg	gg	cc	1860
atg	gg	gg	gg	gg	cc	1920
ttc	ct	gg	gg	gg	cc	1980
ttt	gg	gg	gg	gg	cc	2040
cat	gt	gg	gg	gg	cc	2100
aaga	actt	cc	cc	cc	cc	2160
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ctgg	tg	cc	cc	cc	cc	2280
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Lys Arg Gly Ser Ile Leu Ser Lys Pro Arg Ala Gly Gly Ala Gly Ala  
50 55 60  
Gly Lys Pro Pro Lys Arg Asn Ala Phe Tyr Arg Lys Leu Gln Asn Phe  
65 70 75 80  
Leu Tyr Asn Val Leu Glu Arg Pro Arg Gly Trp Ala Phe Ile Tyr His  
85 90 95  
Ala Tyr Val Phe Leu Leu Val Phe Ser Cys Leu Val Leu Ser Val Phe  
100 105 110  
Ser Thr Ile Lys Glu Tyr Glu Lys Ser Ser Glu Gly Ala Leu Tyr Ile  
115 120 125  
Leu Glu Ile Val Thr Ile Val Val Phe Gly Val Glu Tyr Phe Val Arg  
130 135 140  
Ile Trp Ala Ala Gly Cys Cys Arg Tyr Arg Gly Trp Arg Gly Arg  
145 150 155 160  
Leu Lys Phe Ala Arg Lys Pro Phe Cys Val Ile Asp Ile Met Val Leu  
165 170 175  
Ile Ala Ser Ile Ala Val Leu Ala Ala Gly Ser Gln Gly Asn Val Phe  
180 185 190  
Ala Thr Ser Ala Leu Arg Ser Leu Arg Phe Leu Gln Ile Leu Arg Met  
195 200 205  
Ile Arg Met Asp Arg Arg Gly Gly Thr Trp Lys Leu Leu Gly Ser Val  
210 215 220  
Val Tyr Ala His Ser Lys Glu Leu Val Thr Ala Trp Tyr Ile Gly Phe  
225 230 235 240  
Leu Cys Leu Ile Leu Ala Ser Phe Leu Val Tyr Leu Ala Glu Lys Gly  
245 250 255  
Glu Asn Asp His Phe Asp Thr Tyr Ala Asp Ala Leu Trp Trp Gly Leu  
260 265 270  
Ile Thr Leu Thr Thr Ile Gly Tyr Gly Asp Lys Tyr Pro Gln Thr Trp  
275 280 285  
Asn Gly Arg Leu Leu Ala Ala Thr Phe Thr Leu Ile Gly Val Ser Phe  
290 295 300  
Phe Ala Leu Pro Ala Gly Ile Leu Gly Ser Gly Phe Ala Leu Lys Val  
305 310 315 320  
Gln Glu Gln His Arg Gln Lys His Phe Glu Lys Arg Arg Asn Pro Ala  
325 330 335  
Ala Gly Leu Ile Gln Ser Ala Trp Arg Phe Tyr Ala Thr Asn Leu Ser  
340 345 350  
Arg Thr Asp Leu His Ser Thr Trp Gln Tyr Tyr Glu Arg Thr Val Thr  
355 360 365  
Val Pro Met Tyr Ser Ser Gln Thr Gln Thr Tyr Gly Ala Ser Arg Leu  
370 375 380  
Ile Pro Pro Leu Asn Gln Leu Glu Leu Leu Arg Asn Leu Lys Ser Lys  
385 390 395 400  
Ser Gly Leu Ala Phe Arg Lys Asp Pro Pro Pro Glu Pro Ser Pro Ser  
405 410 415  
Gln Lys Val Ser Leu Lys Asp Arg Val Phe Ser Ser Pro Arg Gly Val  
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Pro Ser Ala Asp Gln Ser Leu Glu Asp Ser Pro Ser Lys Val Pro Lys  
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465 470 475 480  
Lys Gly Ala Ala Ser Arg Gln Asn Ser Glu Glu Ala Ser Leu Pro Gly  
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Glu Asp Ile Val Asp Asp Lys Ser Cys Pro Cys Glu Phe Val Thr Glu  
500 505 510  
Asp Leu Thr Pro Gly Leu Lys Val Ser Ile Arg Ala Val Cys Val Met

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Arg Gly Pro Ala Ile Thr Asp Lys Asp Arg Thr Lys Gly	Pro Ala Glu	
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Ala Glu Leu Pro Glu Asp Pro Ser Met Met Gly Arg	Leu Gly Lys Val	
595	600	605
Glu Lys Gln Val Leu Ser Met Glu Lys Lys Leu Asp Phe	Leu Val Asn	
610	615	620
Ile Tyr Met Gln Arg Met Gly Ile Pro Pro Thr Glu Thr	Glu Ala Tyr	
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Phe Gly Ala Lys Glu Pro Glu Pro Ala Pro Pro Tyr His	Ser Pro Glu	640
645	650	655
Asp Ser Arg Glu His Val Asp Arg His Gly Cys Ile Val	Lys Ile Val	
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Arg Ser Ser Ser Thr Gly Gln Lys Asn Phe Ser Ala Pro	Pro Ala	
675	680	685
Ala Pro Pro Val Gln Cys Pro Pro Ser Thr Ser Trp Gln	Pro Gln Ser	
690	695	700
His Pro Arg Gln Gly His Gly Thr Ser Pro Val Gly Asp	His Gly Ser	
705	710	715
Leu Val Arg Ile Pro Pro Pro Ala His Glu Arg Ser Leu	Ser Ala	
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Tyr Gly Gly Asn Arg Ala Ser Met Glu Phe Leu Arg Gln	Glu Asp	
740	745	750
Thr Pro Gly Cys Arg Pro Pro Glu Gly Thr Leu Arg Asp	Ser Asp Thr	
755	760	765
Ser Ile Ser Ile Pro Ser Val Asp His Glu Glu Leu Glu	Arg Ser Phe	
770	775	780
Ser Gly Phe Ser Ile Ser Gln Ser Lys Glu Asn Leu Asp	Ala Leu Asn	
785	790	795
Ser Cys Tyr Ala Ala Val Ala Pro Cys Ala Lys Val Arg	Pro Tyr Ile	
805	810	815
Ala Glu Gly Glu Ser Asp Thr Asp Ser Asp Leu Cys Thr	Pro Cys Gly	
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<210> 4

<211> 1425

<212> DNA

<213> Homo sapiens

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gtcagaagt cgcacacgg cggcgatac	cccgccccg	gcggggagaa	240
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gcggggcccg ggaagccccc	caagcgcaac	gccttctacc	420
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ctggttttct cctgcctcg	gtgtctgtg	accacgccta	540
tcggaggggg ccctctacat	cctggaaatc	tgactatcg	600
ttcggtcgga tctggggccgc	aggctgtgc	tgccgggtacc	660
aagtttggcc ggaaccgtt	ctgtgtgatt	gacatcatgg	720
gtgctggccg ccgctccca	ggcaacgtc	tgctcatecg	780
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Lys Arg Gly Ser Ile Leu Ser Lys Pro Arg Ala Gly Gly Ala Gly Ala						
50 55 60						
Gly Lys Pro Pro Lys Arg Asn Ala Phe Tyr Arg Lys Leu Gln Asn Phe						
65 70 75 80						
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85 90 95						
Ala Tyr Val Phe Leu Leu Val Phe Ser Cys Leu Val Leu Ser Val Phe						
100 105 110						
Ser Thr Ile Lys Glu Tyr Glu Lys Ser Ser Glu Gly Ala Leu Tyr Ile						
115 120 125						
Leu Glu Ile Val Thr Ile Val Val Phe Gly Val Glu Tyr Phe Val Arg						
130 135 140						
Ile Trp Ala Ala Gly Cys Cys Arg Tyr Arg Gly Trp Arg Gly Arg						
145 150 155 160						
Leu Lys Phe Ala Arg Lys Pro Phe Cys Val Ile Asp Ile Met Val Leu						
165 170 175						
Ile Ala Ser Ile Ala Val Leu Ala Ala Gly Ser Gln Gly Asn Val Phe						
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Ala Thr Ser Ala Leu Arg Ser Leu Arg Phe Leu Gln Ile Leu Arg Met						
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Val Tyr Ala His Ser Lys Glu Leu Val Thr Ala Trp Tyr Ile Gly Phe						
225 230 235 240						
Leu Cys Leu Ile Leu Ala Ser Phe Leu Val Tyr Leu Ala Glu Lys Gly						
245 250 255						
Glu Asn Asp His Phe Asp Thr Tyr Ala Asp Ala Leu Trp Trp Gly Leu						
260 265 270						
Ile Thr Leu Thr Thr Ile Gly Tyr Gly Asp Lys Tyr Pro Gln Thr Trp						
275 280 285						
Asn Gly Arg Leu Leu Ala Ala Thr Phe Thr Leu Ile Gly Val Ser Phe						
290 295 300						
Phe Ala Leu Pro Ala Gly Ile Leu Gly Ser Gly Phe Ala Leu Lys Val						
305 310 315 320						
Gln Glu Gln His Arg Gln Lys His Phe Glu Lys Arg Arg Asn Pro Ala						
325 330 335						
Ala Gly Leu Ile Gln Ser Ala Trp Arg Phe Tyr Ala Thr Asn Leu Ser						
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Arg Thr Asp Leu His Ser Thr Trp Gln Tyr Tyr Glu Arg Thr Val Thr						
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Thr Ile Glu Gln Tyr Ala Ala Thr Gly Thr Leu Phe Trp Met  
50 55 60  
Glu Ile Val Leu Val Val Phe Phe Gly Thr Glu Tyr Val Val Arg Leu  
65 70 75 80  
Trp Ser Ala Gly Cys Arg Ser Lys Tyr Val Gly Leu Trp Gly Arg Leu  
85 90 95  
Arg Phe Ala Arg Lys Pro Ile Ser Ile Ile Asp Leu Ile Val Val Val  
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Ala Ser Met Val Val Leu Cys Val Gly Ser Lys Gly Gln Val Phe Ala  
115 120 125  
Thr Ser Ala Ile Arg Gly Ile Arg Phe Leu Gln Ile Leu Arg Met Leu  
130 135 140  
His Val Asp Arg Gln Gly Gly Thr Trp Arg Leu Leu Gly Ser Val Val  
145 150 155 160  
Phe Ile His Arg Gln Glu Leu Ile Thr Thr Leu Tyr Ile Gly Phe Leu  
165 170 175  
Gly Leu Ile Phe Ser Ser Tyr Phe Val Tyr Leu Ala Glu Lys Asp Ala  
180 185 190  
Val Asn Glu Ser Gly Arg Val Glu Phe Gly Ser Tyr Ala Asp Ala Leu  
195 200 205  
Trp Trp Gly Val Val Thr Val Thr Thr Ile Gly Tyr Gly Asp Lys Val  
210 215 220  
Pro Gln Thr Trp Val Gly Lys Thr Ile Ala Ser Cys Phe Ser Val Phe  
225 230 235 240  
Ala Ile Ser Phe Phe Ala Leu Pro Ala Gly Ile Leu Gly Ser Gly Phe  
245 250 255  
Ala Leu Lys Val Gln Gln Lys Gln Arg Gln Lys His Phe Asn Arg Gln  
260 265 270  
Ile Pro Ala Ala Ala Ser Leu Ile Gln Thr Ala Trp Arg Cys Tyr Ala  
275 280 285  
Ala Glu Asn Pro Asp Ser Ser Thr Trp Lys Ile Tyr Ile Arg Lys Ala  
290 295 300  
Pro Arg Ser His Thr Leu Leu Ser Pro Ser Pro Lys Pro Lys Lys Ser  
305 310 315 320  
Val Val Val Lys Lys Lys Phe Lys Leu Asp Lys Asp Asn Gly Val  
325 330 335  
Thr Pro Gly Glu Lys Met Leu Thr Val Pro His Ile Thr Cys Asp Pro  
340 345 350  
Pro Glu Glu Arg Arg Leu Asp His Phe Ser Val Asp Gly Tyr Asp Ser  
355 360 365  
Ser Val Arg Lys Ser Pro Thr Leu Leu Glu Val Ser Met Pro His Phe  
370 375 380  
Met Arg Thr Asn Ser Phe Ala Glu Asp Leu Asp Leu Glu Gly Glu Thr  
385 390 395 400  
Leu Leu Thr Pro Ile Thr His Ile Ser Gln Leu Arg Glu His His Arg  
405 410 415  
Ala Thr Ile Lys Val Ile Arg Arg Met Gln Tyr Phe Val Ala Lys Lys  
420 425 430  
Lys Phe Gln Gln Ala Arg Lys Pro Tyr Asp Val Arg Asp Val Ile Glu  
435 440 445  
Gln Tyr Ser Gln Gly His Leu Asn Leu Met Val Arg Ile Lys Glu Leu  
450 455 460  
Gln Arg Arg Leu Asp Gln Ser Ile Gly Lys Pro Ser Leu Phe Ile Ser  
465 470 475 480

Val Ser Glu Lys Ser Lys Asp Arg Gly Ser Asn Thr Ile Gly Ala Arg  
 485 490 495  
 Leu Asn Arg Val Glu Asp Lys Val Thr Gln Leu Asp Gln Arg Leu Ala  
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 Leu Ile Thr Asp Met Leu His Gln Leu Leu Ser Leu His Gly Gly Ser  
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 Thr Pro Gly Ser Gly Gly Pro Pro Arg Glu Gly Gly Ala His Ile Thr  
 530 535 540  
 Gln Pro Cys Gly Ser Gly Gly Ser Val Asp Pro Glu Leu Phe Leu Pro  
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 Ser Asn Thr Leu Pro Thr Tyr Glu Gln Leu Thr Val Pro Arg Arg Gly  
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 Asp Gly Thr Leu Leu Leu Glu Gly Gly Arg Glu Glu Gly Gln Arg  
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 Pro Val Lys Arg Asn Asn Ala Lys Tyr Arg Arg Ile Gln Thr Leu Ile  
 100 105 110  
 Tyr Asp Ala Leu Glu Arg Pro Arg Gly Trp Ala Leu Leu Tyr His Ala  
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 Leu Val Phe Leu Ile Val Leu Gly Cys Leu Ile Leu Ala Val Leu Thr  
 130 135 140  
 Thr Phe Lys Glu Tyr Glu Thr Val Ser Gly Asp Trp Leu Leu Val Pro  
 145 150 155 160  
 Glu Thr Phe Ala Ile Phe Ile Phe Gly Ala Glu Phe Ala Leu Arg Ile  
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 180 185 190  
 Lys Phe Ala Arg Lys Pro Leu Cys Met Leu Asp Ile Phe Val Leu Ile  
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 Ala Ser Val Pro Val Val Ala Val Gly Asn Gln Gly Asn Val Leu Ala  
 210 215 220  
 Thr Ser Leu Arg Ser Leu Arg Phe Leu Gln Ile Leu Arg Met Leu Arg  
 225 230 235 240  
 Met Asp Arg Arg Gly Gly Thr Trp Lys Leu Leu Gly Ser Ala Ile Cys  
 245 250 255  
 Ala His Ser Lys Glu Leu Ile Thr Ala Trp Tyr Ile Gly Phe Leu Thr  
 260 265 270  
 Leu Ile Leu Ser Ser Phe Leu Val Tyr Leu Val Glu Lys Asp Val Pro  
 275 280 285  
 Glu Met Asp Ala Gln Gly Glu Glu Met Lys Glu Glu Phe Glu Thr Tyr  
 290 295 300  
 Ala Asp Ala Leu Trp Trp Gly Leu Ile Thr Leu Ala Thr Ile Gly Tyr  
 305 310 315 320  
 Gly Asp Lys Thr Pro Lys Thr Trp Glu Gly Arg Leu Ile Ala Ala Thr  
 325 330 335  
 Phe Ser Leu Ile Gly Val Ser Phe Phe Ala Leu Pro Ala Gly Ile Leu  
 340 345 350  
 Gly Ser Gly Leu Ala Leu Lys Val Gln Glu Gln His Arg Gln Lys His

355	360	365													
Phe	Glu	Lys	Arg	Arg	Lys	Pro	Ala	Ala	Glu	Leu	Ile	Gln	Ala	Ala	Trp
370						375					380				
Arg	Tyr	Tyr	Ala	Thr	Asn	Asn	Arg	Leu	Asp	Leu	Val	Ala	Thr	Trp	Arg
385					390					395					400
Phe	Tyr	Glu	Ser	Val	Val	Ser	Phe	Pro	Phe	Phe	Arg	Lys	Glu	Gln	Leu
					405				410					415	
Glu	Ala	Ala	Ala	Ser	Gln	Lys	Leu	Gly	Leu	Leu	Asp	Arg	Val	Arg	Leu
					420			425					430		
Ser	Asn	Pro	Arg	Gly	Ser	Asn	Thr	Lys	Gly	Lys	Leu	Phe	Thr	Pro	Leu
					435			440				445			
Asn	Val	Asp	Ala	Ile	Glu	Glu	Ser	Pro	Ser	Lys	Glu	Pro	Lys	Pro	Val
					450			455			460				
Gly	Leu	Asn	Asn	Lys	Glu	Arg	Phe	Arg	Thr	Ala	Phe	Arg	Met	Lys	Ala
465					470				475					480	
Tyr	Ala	Phe	Trp	Gln	Ser	Ser	Glu	Asp	Ala	Gly	Thr	Gly	Asp	Pro	Met
					485			490				495			
Thr	Glu	Asp	Arg	Gly	Tyr	Gly	Asn	Asp	Phe	Leu	Ile	Glu	Asp	Met	Ile
					500			505				510			
Pro	Thr	Leu	Lys	Ala	Ala	Ile	Arg	Ala	Val	Arg	Ile	Leu	Gln	Phe	Arg
					515			520				525			
Leu	Tyr	Lys	Lys	Phe	Lys	Glu	Thr	Leu	Arg	Pro	Tyr	Asp	Val	Lys	
					530			535			540				
Asp	Val	Ile	Glu	Gln	Tyr	Ser	Ala	Gly	His	Leu	Asp	Met	Leu	Ser	Arg
545					550				555					560	
Ile	Lys	Tyr	Leu	Gln	Thr	Arg	Ile	Asp	Met	Ile	Phe	Thr	Pro	Gly	Pro
					565			570				575			
Pro	Ser	Thr	Pro	Lys	His	Lys	Ser	Gln	Lys	Gly	Ser	Ala	Phe	Thr	
					580			585				590			
Tyr	Pro	Ser	Gln	Gln	Ser	Pro	Arg	Asn	Glu	Pro	Tyr	Val	Ala	Arg	Ala
					595			600			605				
Ala	Thr	Ser	Glu	Thr	Glu	Asp	Gln	Ser	Met	Met	Gly	Lys	Phe	Val	Lys
					610			615			620				
Val	Glu	Arg	Gln	Val	His	Asp	Met	Gly	Lys	Lys	Leu	Asp	Phe	Leu	Val
					625			630			635			640	
Asp	Met	His	Met	Gln	His	Met	Glu	Arg	Leu	Gln	Val	His	Val	Thr	Glu
					645			650				655			
Tyr	Tyr	Pro	Thr	Lys	Gly	Ala	Ser	Ser	Pro	Ala	Glu	Gly	Glu	Lys	Lys
					660			665			670				
Glu	Asp	Asn	Arg	Tyr	Ser	Asp	Leu	Lys	Thr	Ile	Ile	Cys	Asn	Tyr	Ser
					675			680			685				
Glu	Ser	Gly	Pro	Pro	Asp	Pro	Pro	Tyr	Ser	Phe	His	Gln	Val	Pro	Ile
					690			695			700				
Asp	Arg	Val	Gly	Pro	Tyr	Gly	Phe	Phe	Ala	His	Asp	Pro	Val	Lys	Leu
					705			710			715			720	
Thr	Arg	Gly	Gly	Pro	Ser	Ser	Thr	Lys	Ala	Gln	Ala	Asn	Leu	Pro	Ser
					725			730			735				
Ser	Gly	Ser	Thr	Tyr	Ala	Glu	Arg	Pro	Thr	Val	Leu	Pro	Ile	Leu	Thr
					740			745			750				
Leu	Leu	Asp	Ser	Cys	Val	Ser	Tyr	His	Ser	Gln	Thr	Glu	Leu	Gln	Gly
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Pro	Tyr	Ser	Asp	His	Ile	Ser	Pro	Arg	Gln	Arg	Arg	Ser	Ile	Thr	Arg
					770			775			780				
Asp	Ser	Asp	Thr	Pro	Leu	Ser	Leu	Met	Ser	Val	Asn	His	Glu	Glu	Leu
					785			790			795			800	
Glu	Arg	Ser	Pro	Ser	Gly	Phe	Ser	Ile	Ser	Gln	Asp	Arg	Asp	Asp	Tyr
					805			810				815			
Val	Phe	Gly	Pro	Ser	Gly	Gly	Ser	Ser	Trp	Met	Arg	Glu	Lys	Arg	Tyr
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Leu	Ala	Glu	Gly	Glu	Thr	Asp	Thr	Asp	Thr	Asp	Pro	Phe	Thr	Pro	Ser
					835			840				845			
Gly	Ser	Met	Pro	Met	Ser	Ser	Thr	Gly	Asp	Gly	Ile	Ser	Asp	Ser	Ile
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Trp	Thr	Pro	Ser	Asn	Lys	Pro	Thr								
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<213> Homo sapiens

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35 40 45  
Pro Val Lys Arg Asn Asn Ala Lys Tyr Arg Arg Ile Gln Thr Leu Ile  
50 55 60  
Tyr Asp Ala Leu Glu Arg Pro Arg Gly Trp Ala Leu Leu Tyr His Ala  
65 70 75 80  
Leu Val Phe Leu Ile Val Leu Gly Cys Leu Ile Leu Ala Val Leu Thr  
85 90 95  
Thr Phe Lys Glu Tyr Glu Thr Val Ser Gly Asp Trp Leu Leu Leu  
100 105 110  
Glu Thr Phe Ala Ile Phe Ile Phe Gly Ala Glu Phe Ala Leu Arg Ile  
115 120 125  
Trp Ala Ala Gly Cys Cys Arg Tyr Lys Gly Trp Arg Gly Arg Leu  
130 135 140  
Lys Phe Ala Arg Lys Pro Leu Cys Met Leu Asp Ile Phe Val Leu Ile  
145 150 155 160  
Ala Ser Val Pro Val Val Ala Val Gly Asn Gln Gly Asn Val Leu Ala  
165 170 175  
Thr Ser Leu Arg Ser Leu Arg Phe Leu Gln Ile Leu Arg Met Leu Arg  
180 185 190  
Met Asp Arg Arg Gly Gly Thr Trp Lys Leu Leu Gly Ser Ala Ile Cys  
195 200 205  
Ala His Ser Lys Glu Leu Ile Thr Ala Trp Tyr Ile Gly Phe Leu Thr  
210 215 220  
Leu Ile Leu Ser Ser Phe Leu Val Tyr Leu Val Glu Lys Asp Val Pro  
225 230 235 240  
Glu Val Asp Ala Gln Gly Glu Glu Met Lys Glu Glu Phe Glu Thr Tyr  
245 250 255  
Ala Asp Ala Leu Trp Trp Gly Leu Ile Thr Leu Ala Thr Ile Gly Tyr  
260 265 270  
Gly Asp Lys Thr Pro Lys Thr Trp Glu Gly Arg Leu Ile Ala Ala Thr  
275 280 285  
Phe Ser Leu Ile Gly Val Ser Phe Phe Ala Leu Pro Ala Gly Ile Leu  
290 295 300  
Gly Ser Gly Leu Ala Leu Lys Val Gln Glu Gln His Arg Gln Lys His  
305 310 315 320  
Phe Glu Lys Arg Arg Lys Pro Ala Ala Glu Leu Ile Gln Ala Ala Trp  
325 330 335  
Arg Tyr Tyr Ala Thr Asn Pro Asn Arg Ile Asp Leu Val Ala Thr Trp  
340 345 350  
Arg Phe Tyr Glu Ser Val Val Ser Phe Pro Phe Phe Arg Lys Glu Gln  
355 360 365  
Leu Glu Ala Ala Ser Ser Gln Lys Leu Gly Leu Leu Asp Arg Val Arg  
370 375 380  
Leu Ser Asn Pro Arg Gly Ser Asn Thr Lys Gly Lys Leu Phe Thr Pro  
385 390 395 400  
Leu Asn Val Asp Ala Ile Glu Glu Ser Pro Ser Lys Glu Pro Lys Pro  
405 410 415  
Val Gly Leu Asn Asn Lys Glu Arg Phe Arg Thr Ala Phe Arg Met Lys  
420 425 430  
Ala Tyr Ala Phe Trp Gln Ser Ser Glu Asp Ala Gly Thr Gly Asp Pro  
435 440 445  
Met Ala Glu Asp Arg Gly Tyr Gly Asn Asp Phe Pro Ile Glu Asp Met  
450 455 460  
Ile Pro Thr Leu Lys Ala Ala Ile Arg Ala Val Arg Ile Leu Gln Phe  
465 470 475 480

Arg Leu Tyr Lys Lys Phe Lys Glu Thr Leu Arg Pro Tyr Asp Val  
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 Lys Asp Val Ile Glu Gln Tyr Ser Ala Gly His Leu Asp Met Leu Ser  
           500                  505                  510  
 Arg Ile Lys Tyr Leu Gln Thr Arg Ile Asp Met Ile Phe Thr Pro Gly  
           515                  520                  525  
 Pro Pro Ser Thr Pro Lys His Lys Ser Gln Lys Gly Ser Ala Phe  
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 Thr Phe Pro Ser Gln Gln Ser Pro Arg Asn Glu Pro Tyr Val Ala Arg  
           545                  550                  555                  560  
 Pro Ser Thr Ser Glu Ile Glu Asp Gln Ser Met Met Gly Lys Phe Val  
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 Lys Val Glu Arg Gln Val Gln Asp Met Gly Lys Lys Leu Asp Phe Leu  
           580                  585                  590  
 Val Asp Met His Met Gln His Met Glu Arg Leu Gln Val Gln Val Thr  
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 Glu Tyr Tyr Pro Thr Lys Gly Thr Ser Ser Pro Ala Glu Ala Glu Lys  
           610                  615                  620  
 Lys Glu Asp Asn Arg Tyr Ser Asp Leu Lys Thr Ile Ile Cys Asn Tyr  
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 Ser Glu Thr Gly Pro Pro Glu Pro Pro Tyr Ser Phe His Gln Val Thr  
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 Ile Asp Lys Val Ser Pro Tyr Gly Phe Phe Ala His Asp Pro Val Asn  
           660                  665                  670  
 Leu Pro Arg Gly Gly Pro Ser Ser Gly Lys Val Gln Ala Thr Pro Pro  
           675                  680                  685  
 Ser Ser Ala Thr Thr Tyr Val Glu Arg Pro Thr Val Leu Pro Ile Leu  
           690                  695                  700  
 Thr Leu Leu Asp Ser Arg Val Ser Cys His Ser Gln Ala Asp Leu Gln  
           705                  710                  715                  720  
 Gly Pro Tyr Ser Asp Arg Ile Ser Pro Arg Gln Arg Arg Ser Ile Thr  
           725                  730                  735  
 Arg Asp Ser Asp Thr Pro Leu Ser Leu Met Ser Val Asn His Glu Glu  
           740                  745                  750  
 Leu Glu Arg Ser Pro Ser Gly Phe Ser Ile Ser Gln Asp Arg Asp Asp  
           755                  760                  765  
 Tyr Val Phe Gly Pro Asn Gly Gly Ser Ser Trp Met Arg Glu Lys Arg  
           770                  775                  780  
 Tyr Leu Ala Glu Gly Glu Thr Asp Thr Asp Thr Asp Pro Phe Thr Pro  
           785                  790                  795                  800  
 Ser Gly Ser Met Pro Leu Ser Ser Thr Gly Asp Gly Ile Ser Asp Ser  
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